

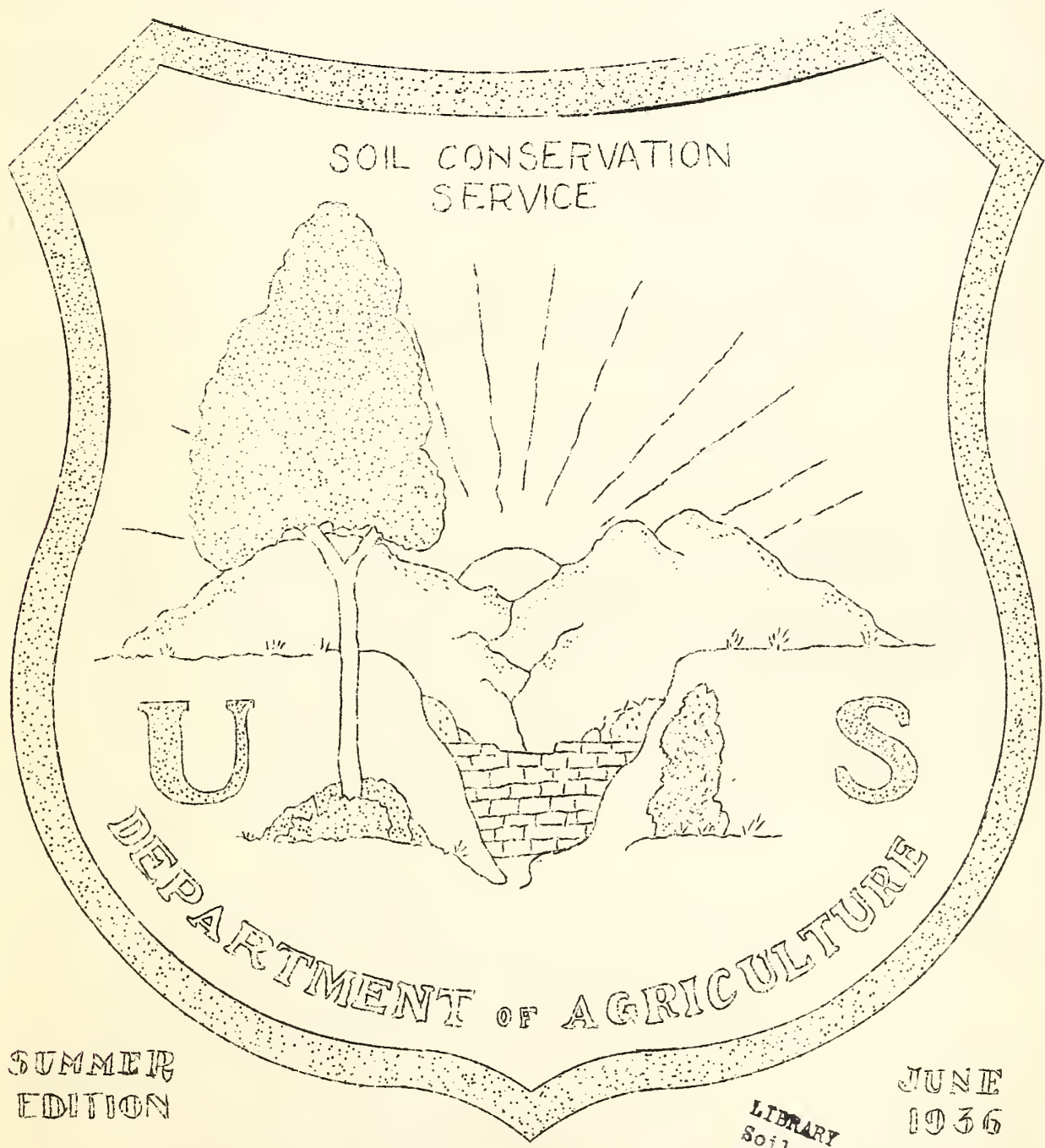
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HIGH PLAINS CONSERVATIONIST



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HIGH PLAINS CONSERVATIONIST

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D. A. Dobkins
C. W. Humble
Editors.

H. H. Finnell
Regional Conservator.

CROP MANAGEMENT AIDS IN EROSION CONTROL

H.H.FINNELL, REGIONAL CONSERVATOR

Crop management is one of the most important details of farm practice in the plains area. It has not been exercised to the full possible advantage except in few cases. Good crop management increases the financial stability of farming. Good crop management also makes way for the easy control of soil blowing. There is one idea about plains farming which is borne out both by scientific studies and practical experience. It is that the best use of the soil and moisture resources here can be had only by a system of changing crops and farming methods to suit changing seasonal conditions. How often have we heard it said that, what worked last year did not work this year. Rule of thumb should never be depended on in planning crops any more than a single crop should be depended on.

If seasonal conditions would permit it, a regular every year production of wheat would not only make a satisfactory income but would also provide the ideal ground cover for erosion prevention. The regular addition of trash to the soil gradually worked in so that unrotted straw and stubble make up part of the surface exposure of soil, maintains a physical condition resistant to blowing. As long as this is kept up it is a comparatively simple matter for blowing to be controlled with the ordinary farming operations.

If from drouth or any other cause the regular crop fails plans should be immediately made to put a substitute crop in its place. The conditions causing a wheat failure seldom interfere with the production of a sorghum

crop in the summer, but sorghums on the other hand may interfere with starting the wheat crop the same fall. Skillful management is required in selecting the variety, timing, and spacing the planting and disposing of the crop where sorghums are introduced on wheat land as a substitute and cover crop. The first decisive factor is the condition of the soil itself. How badly does it need a cover crop? Fields on which nothing has grown for two years, or more, may need a solid planting of sorghum to insure regaining control over the blowing. If some unrotted crop material remains, but the soil is threatening to become susceptible to erosion a more sparing stand of sorghum may be sufficient. Both wide row and strip planting is used with the fallow spaces clean tilled. Solid planting ordinarily spoils the prospects for a favorable wheat sowing condition. The partial fallow idea of wide spacing leaves open a chance for favorable sowing condition, but does not insure it.

Whenever sorghum plantings of any kind are used to tie down a troublesome field some thought should be given to the risk of deposits from neighboring blowouts. Sorghum plantings in any spacing may collect soil. Strips planted on a contour are not as objectionable as otherwise, since the deposits produce a beneficial contour effect.

An important idea to keep in mind is that there are possibly many varying degrees of protection. A drastic method should be selected to cope with the most serious condition, while the milder remedy can be applied to the less serious condition. Sorghum residues in the fields can more generally be depended on to accumulate new soil, than to let it go. Therefore, as a general thing the more uniformly distributed the cover material the better will be the final outcome, especially if surrounded by blowing hazards. Soil drifting irregularly is highly objectionable but a uniform deposit is a gain in the long run. Of course, the ideal for any community is to hold all the soil in its proper place. This can only be hoped for when regular crops are again produced through drouth as well as through humid season. Now, these crop failures in dry years can only be avoided in two ways, by water conservation and by crop diversification.

The prevention of runoff by contour tillage adds moisture to the soil and turns some otherwise unfavorable occasions into favorable planting opportunities for the regular crop. The more regular crops are successful the less need will there be for substitute and cover crops. Then if types of crop is changed when necessary there need not be a year pass by without some kind of a crop being produced. To avoid a crop failure is to also avoid an erosion hazard.

In planning sorghum cover crops for the coming summer the heavier plantings should be made on the worst fields with the lighter wide row, or strip plantings on the less risky places. Land that produced a regular crop last year may be fallowed for wheat this year with comparative safety, unless the stalks have been pastured or otherwise destroyed. The secret of adequate preparation against the 1936 and 1937 blow period lies in the preparing now with summer plantings to suit the needs of each individual piece of land considering its surroundings.

It is always well to be prepared for the worst, but any degree of protection is better than none at all. Your attention is recalled to the fields in your own community which have not blown as compared to those

which have. Those with enough of the right kind of trash have not needed extra tillage. Now is the time to look ahead and prepare to have land entering the blow season next winter and spring in such condition that a minimum of extra tillage will be necessary to prevent further blowing.

Application of the best principles for preventing soil blowing is largely up to the individual land owner and operator, and is more apt to be satisfactorily solved by those who reside upon and operate their own land. Much of the wind erosion has occurred on land owned by non-residents who, either could not or would not secure satisfactory operators to take care of their land. This is a situation, the remedy for which lies with the whole community. It is a public question and will require the best efforts of the government, national, state and local. The solution will more quickly be brought about when public sentiment demands that land owners take care of their land in such a way that it will not become a hazard to adjacent lands. The privilege of land ownership carries with it a responsibility and there is no more moral reason why one man's land should be permitted to damage the land of his neighbor, than that his livestock should be allowed to trespass on his neighbors crops. The entire problem of erosion prevention demands the cooperation of the farmers and all agencies with whom he comes in contact. The protection of land should be of vital concern to every citizen for his very existence depends upon the soil. The Soil Conservation Service solicits the cooperation of all our citizens and all government agencies, in efforts being made to protect our soil. Questions and suggestions from anyone interested will be appreciated and should be submitted to the local office of the Soil Conservation Service.

THE SOIL CONSERVATION SERVICE COOPERATIVE AGREEMENT

C. LUKER, SOIL CONSERVATIONIST.

Under the system of government in the United States land is controlled and operated, in most cases, as private property. Even though operated in this manner it is the greatest national resource.

The misuse of this resource has resulted in serious damage to the agricultural value of lands. In order to make it possible to repair the damage already done and prevent future damage cooperation between the government and the owner is necessary on demonstrational areas.

The cooperative agreement is the authority which enables the Soil Conservation Service to spend government money on private property in establishing demonstration areas for erosion control and proper land use.

The agreement sets forth the conditions found on the individual farm unit together with the proposed schedule of erosion control practices to be inaugurated. It is a pledge of good faith by which the farmer agrees to pursue the necessary practices for erosion control and which will at the same time give the greatest possible financial return.

Without setting forth in detail what the government and the land owner are each to do it is believed that most erosion prevention measures if practiced at all will be of short duration.

Most people are so constituted that they fail to provide for protection against the recurrence of land damage through erosion until the damage is already apparent.

A written understanding serves as a constant reminder of doing the needed things before the hazard has made its appearance. The agreement marks the beginning from which the effectiveness of all control practices to be inaugurated are to be measured.

The Project areas are set up as Demonstration areas. In these areas it is planned that the cooperating farmers can with the help and advice of the project staff alter farming practices and cropping plans commonly used within and adjacent to the area in such a way that erosion is retarded or completely controlled. Where necessary the government aids the farmers by furnishing labor and equipment for the building of suitable structures for mechanical control of erosion such as terraces and check dams or by furnishing seed for an emergency planting of erosion resisting crops and grass seed for permanent vegetation.

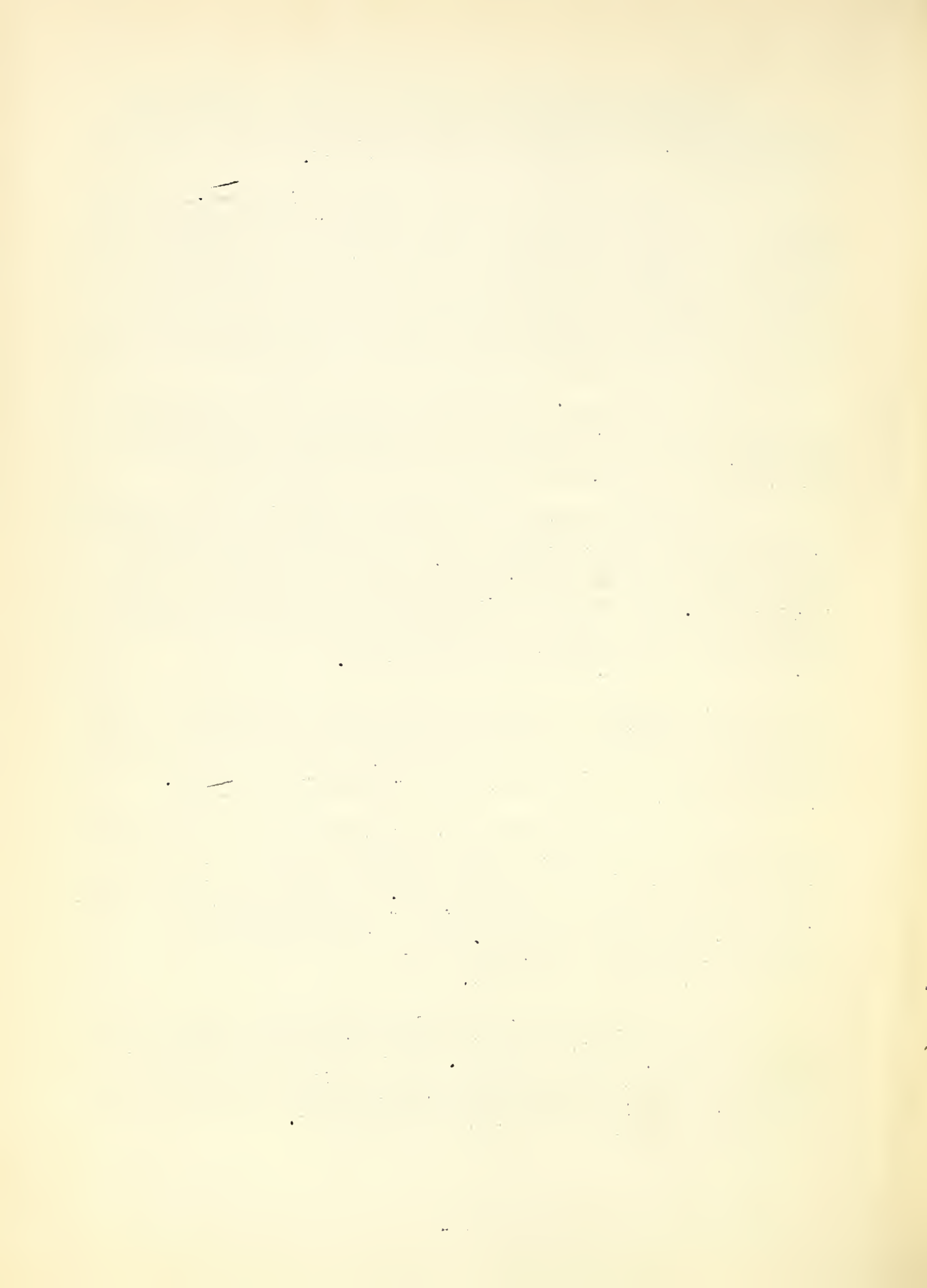
All of the above is set forth in detail in the cooperative agreement. These details represent the understanding reached between the farmer and the representative of the government at the time the farmer agreed to cooperate in carrying out the demonstration.

The Project Manager or Camp Superintendent is a representative of the government who is charged with carrying out the erosion control program for each demonstrational area. The erosion control program must conform to certain established principals set forth in a "Project Working Plan". This project working plan was written by the project staff with the advice of local cooperating agencies. It was approved by the Regional Conservator, the State Advisory Committee and the Washington office of the Soil Conservation Service.

The cooperative agreement is the erosion control and land use plan for the individual farm by which the project manager indicates to the Regional Conservator and the Washington office of the Soil Conservation Service what he proposes to do in carrying out the demonstration along the approved lines set out in the "Project Working Plan".

There are seven copies of the cooperative agreement. One copy goes to the farmer cooperator (or one copy to the land owner and one copy to the tenant in case the farm is operated by the tenant). One copy goes to the permanent project files. One copy is retained for the regional office files and three copies are sent to the Washington office of the Soil Conservation Service. Thus each interested party to the agreement is furnished a permanent record of the proposed plans for the farm as recorded in the agreement.

In the final analysis all erosion prevention measures agreed upon and put into operation on the individual farm must reflect an increase of production units in kind. There could be no intelligent analysis and interpretation of results to see if this important part of the program is being complied with without knowing the responsibility and proposed activity of the cooperating agencies.



SOME COMPARISONS OF MOISTURE PENETRATIONS ON TREATED AND UNTREATED LAND
FOLLOWING MAY RAINS

- - - - - DALHART, TEXAS. - - - - -

The pasture of Harriet Burrough's which was contour listed last year, two rows listed and two blank rows, the moisture went down to a depth of $3\frac{1}{4}$ inches in the furrow while on untreated parts of the same pasture the moisture penetrated 21 inches. These observations were made after $5\frac{1}{2}$ inches of rain which fell from May 18 to May 28.

On the W. H. Miles farm moisture penetration was to a depth of 25 inches on terraced and contour listed land as compared to $1\frac{1}{4}$ inches of wet soil on an adjoining field which was not terraced or contour listed.

- - - - - HEREFORD, TEXAS. - - - - -

O. G. Hill had wet soil to a depth of 32 inches below pasture furrows, untreated pasture had 18 inches of wet soil. This was after 5.5 inches of rain in the last ten days of May.

Geo. P. Turrentine, on a contour listed wheat field had moisture to a depth of 30 inches as compared to $2\frac{1}{4}$ inches of moisture in a nearby untreated field. Rains over a ten day period previous to making these tests totaled 5.08 inches.

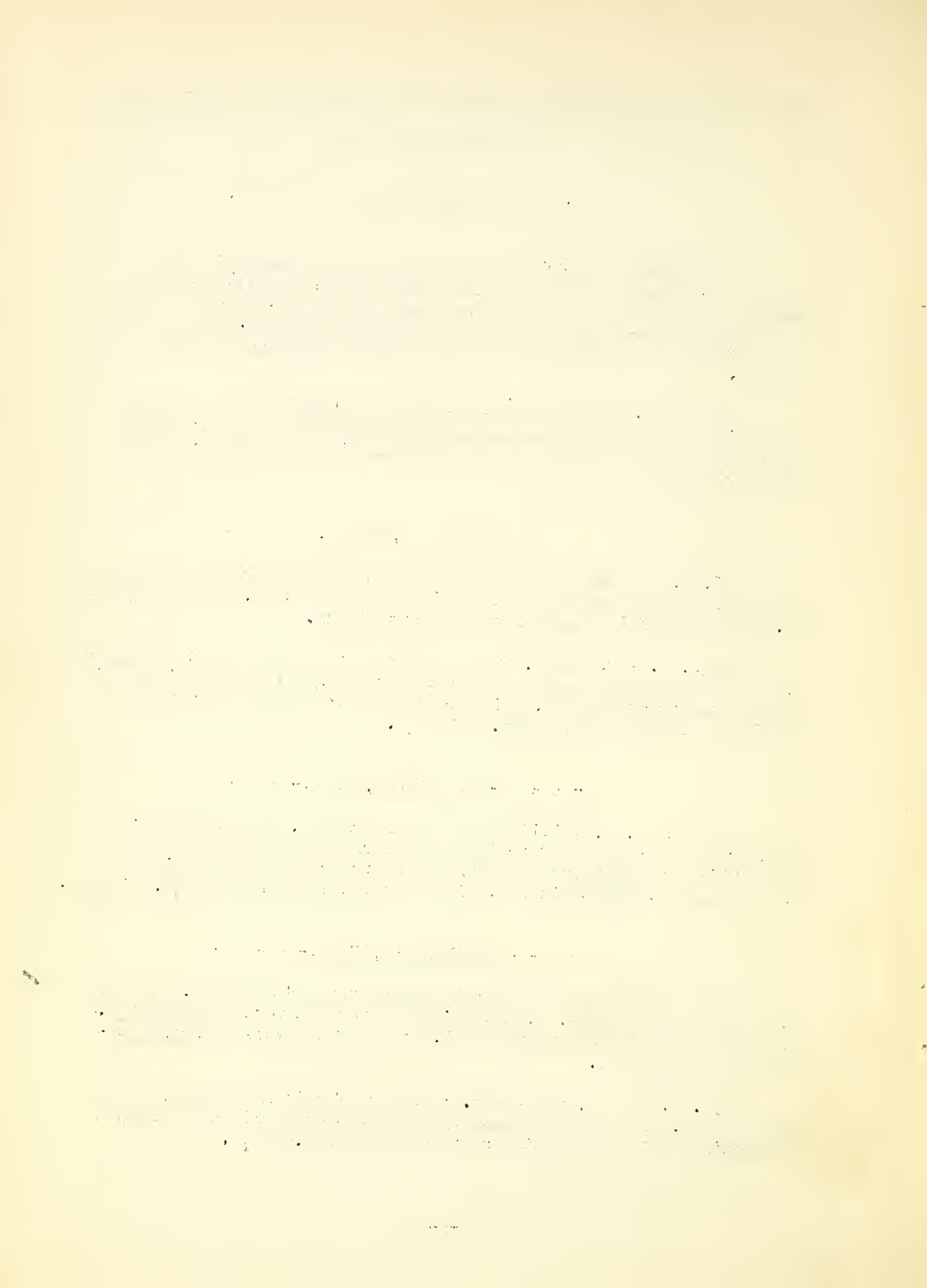
- - - - - LITTLEFIELD, TEXAS. - - - - -

On the G. G. Gilliland Farm at Abernathy, Texas, moisture penetrated to a depth of 89 inches on terraced and contour listed land while on adjoining land farmed in straight rows the soil was wet to a depth of $38\frac{1}{2}$ inches. This was following rains of 7.6 inches.

- - - - - STRATFORD, TEXAS. - - - - -

Following a series of rains which totaled 6 inches, the terraced wheat land on M. M. Keenan's Farm had an average depth of 2.2 feet of moisture as compared to 1.1 feet of wet soil on nearby untreated wheat land.

C. C. Bryant, who had 5.73 inches of rain had moisture to a depth of 2.2 feet on a contour furrowed pasture while an untreated adjoining pasture had moisture to a depth of 1.8 feet.



- - - - -CHANNING, TEXAS- - - - -

J. B. Brown who has a terraced and contour listed silty clay loam field, had moisture to a depth of 30 inches. Similar land farmed in straight rows had 14 inches of moisture. This was after rains of 3 inches.

After 3.42 inches of rain G. C. Ledbetter had wet soil to a depth of 36 inches on a terraced and contour listed loam soil field as compared to 17 inches of moisture on land not so treated.

- - - - -VEGA, TEXAS.- - - - -

A wheat field of the McNabb Estate, which had been contour listed had an average moisture depth of 1.96 feet while a nearby field untreated had 1.53 feet of wet soil. This was following 4.75 inches of rains some of which fell slowly.

- - - - -GUYMON, OKLAHOMA.- - - - -

C. D. McBratney had 32 inches of moist soil below contour pasture furrows. Midway between the furrows moisture penetrated to a depth of 15 inches. An untreated pasture adjoining had wet soil to a depth of 11 inches. These pastures had received 1.27 inches of rain.

- - - - -PERRYTON, TEXAS.- - - - -

On a terraced loam field belonging to J. H. Kershaw the average moisture depth was 32 inches as compared to 21 inches on nearby unterraced land.

Mr. Kershaw had an average depth of 24 inches of wet soil on his contour furrowed pasture while an untreated pasture had only 16 inches.

- - - - -CLAYTON, NEW MEXICO.- - - - -

W. S. Taylor, on his contour furrowed pasture, had a moisture penetration of 18 inches after 1.6 inches of slow falling rains while the untreated portion of his pasture had wet soil to a depth of 12 inches.

- - - - -LAMESA, TEXAS.- - - - -

Reports from Lamesa indicate that enough rain had fallen to allow such a deep penetration of moisture that measurements could not be made.

- - - - -LIBERAL, KANSAS.- - - - -

On the farm of Lloyd L. Lambert in the field which was terraced and contour worked with a duck foot plow the moisture penetration was 36 inches while on adjoining land which was not worked on the contour the soil was wet to a depth of 24 inches.

H. E. Lewis, who has a contour furrowed pasture, had moisture to a depth of 54 inches. Unfurrowed pastures had wet soil to a depth of 27 inches.

- - - - -MEMPHIS, TEXAS.- - - - -

On the W. C. Dickey terraced and contour listed sandy loam farm moisture went below a depth of 11 feet. This farm has a slope of 2%. Adjoining similar soil with a slope of .5% farmed in straight rows had moisture to $7\frac{1}{2}$ feet.

F. A. Fich, who has some pasture furrows 6 feet apart, had wet soil to an average depth of 22 inches under the furrows as compared to 5 inches on unfurrowed adjacent pasture.

- - - - -SPRINGFIELD, COLO.- - - - -

On the terraced and contour listed field of the J. V. Jasseraud farm the moisture depth was too deep to make a test. Adjacent land listed in straight rows had moisture to a depth of 36 inches. This was after rains of 5.93 inches.

CONSERVANCY DISTRICTS

The formation of Wind Erosion Conservation Districts in order to put into effect erosion control measures over large areas outside of Soil Conservation Service projects is meeting with much favor in the Panhandle of Texas.

Mr. Noel McDade, County Judge, Moore County, Dumas, Texas, writes the following:

"Relative to the Wind Erosion Conservation Districts created in fourteen Panhandle counties, under the provisions of H B 978, enacted by the 44th Legislature, I wish to say that after six months close observation and study of the various features of the Bill and the progress that has been made by virtue of the authority it grants to the Governing Bodies of the Districts so created, I am thoroughly convinced that through these Districts a worthwhile, permanent solution of wind erosion control can be worked out.

"The outstanding feature of the Bill is that in working out a solution of our soil conservation problems it provides that all governmental agencies, the farmers themselves and the governing body of each District work in harmony and collectively on programs peculiar to the needs of each District or locality.

"It is a recognized fact now that no plan of erosion control will operate successfully that does not bring the farmer into the picture, and when they more thoroughly understand the Bill and the security and protection it will afford them in the future, in lending them every assistance possible in carrying out a successful farming program and wind erosion control, I am sure it will become increasingly more appreciated.

"I regard the creation of the Wind Erosion Districts as being a long step forward in our agricultural development, and it is my opinion that this action will be universally taken in practically all counties of the State and may become a pattern for other states to follow in adopting legislation dealing with Soil Erosion problems."

Mr. H. H. Finnell, Regional Conservator, Region 6, Amarillo, Texas, has the following to say regarding Conservation Districts:

"The County Wind Erosion Conservation Districts organized in Texas have one function which it is not possible for any other governmental agency to exercise satisfactorily. This is the compulsory control of erosion on abandoned and neglected lands which cause damage in the community. The disposition on the part of the County governing bodies to further permanent changes and improvements necessary to a long time effective erosion control will enable various agencies to aid in and supplement the conservation district activities to the fullest extent.

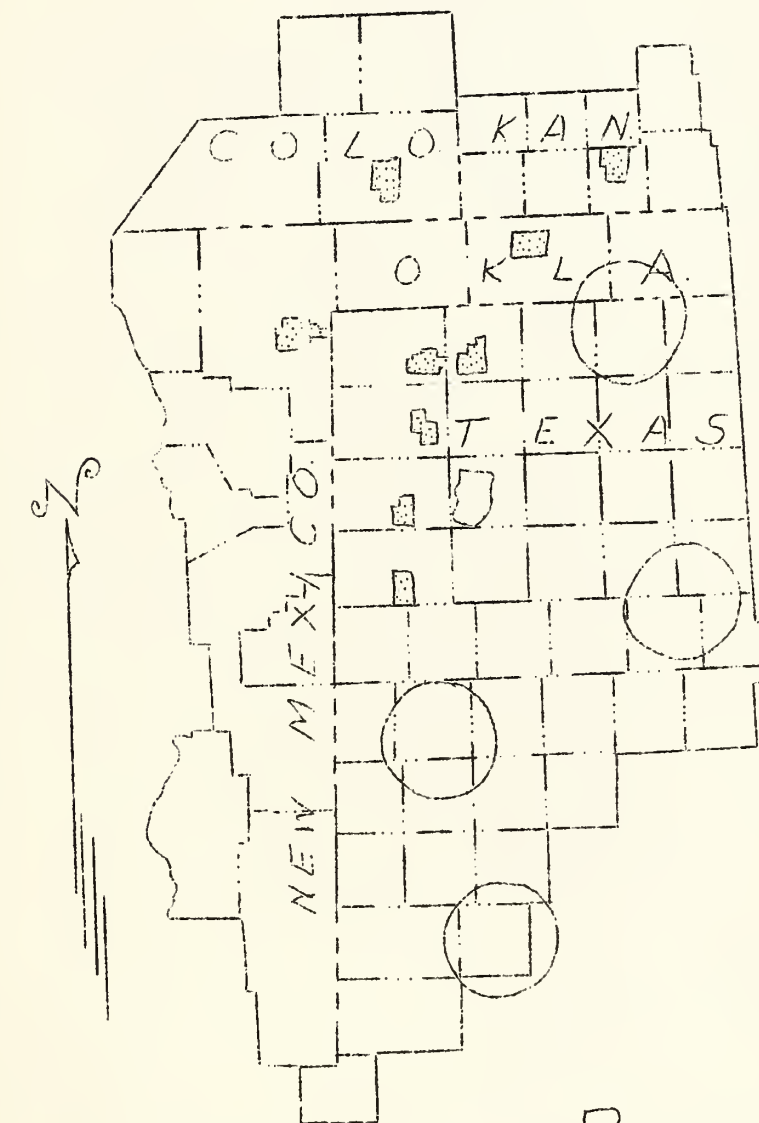
District representatives indicate they are relying largely upon State and Federal agencies for erosion surveys as a basis of planning, research to provide more adequate information, and technical guidance in the planning and execution of their respective erosion control programs.

"The furthering of the conservative activity of these districts seems to me an opportunity to complete the picture of coordinated erosion prevention effort in the Plains area of Texas and bring into maximum usefulness the research and educational foundations already laid by Experiment Stations, the Soil Conservation Service and the Extension Service."

WORK COMPLETED TO DATE IN PROJECTS AND CAMPS

1. Terraces constructed - - - - -	1,000 Miles
2. Contour tilled - - - - -	79,552 Acres
3. Pasture furrowed - - - - -	11,286 Acres
4. Seeded and being prepared for reseeding to grass -	8,067 Acres
5. Check dams for gully control - - - - -	5,816
6. Stock water ponds on range land - - - - -	35
7. Noxious weeds removed from pastures - - - - -	38,526 Acres
8. Strip cropping used - - - - -	36,396 Acres
9. Trees and shrubs planted in windbreaks and for gully control - - - - -	481,516

Soil Conservation Service



○ F.C.W. Camps
■ S.C.S. Projects

Region-6

